experiments and computations which are not discussed here. To catalogue and describe, merely, the various influences affecting the projectile in flight, leaves the relative importance assigned to each apparently hap-hazard and arbitrary. Thus this introduction seeks to mention only those physical assumptions which enter explicitly into the computations of the accompanying tables, and attempts only such justification for them as is in keeping with the expository nature of this paper."

Solid Geometry with Problems and Applications. Revised edition. By H. E. SLAUGHT and N. J. LENNES. Boston, 1919. 12mo. 8 + 211 pp. Price $1.00.

Quotations from the Preface: "In re-writing the *Solid Geometry* the authors have consistently carried out the distinctive features described in the preface of the *Plane Geometry*. . . . Owing to the greater maturity of the pupils it has been possible to make the logical structure of the *Solid Geometry* more prominent than in the *Plane Geometry*. The axioms are stated and applied at the precise points where they are to be used. Theorems are no longer quoted in the proofs but are only referred to by paragraph numbers; while with increasing frequency the student is left to his own devices in supplying the reasons and even in filling in the logical steps of the argument. For convenience of reference the axioms and theorems of plane geometry which are used in the Solid Geometry are collected in the Introduction.

"In order to put the essential principles of solid geometry, together with a reasonable number of applications, within limited bounds (156 pages), certain topics have been placed in an Appendix. This was done in order to provide a minimum course in convenient form for class use and not because these topics, Similarity of Solids and Applications of Projection, are regarded as of minor importance. In fact, some of the examples under these topics are among the most interesting and concrete in the text. . . .

"The treatment of incommensurables throughout the body of this text, both Plane and Solid, is believed to be sane and sensible. In each case, a frank assumption is made as to the existence of the concept in question (length of a curve, area of a surface, volume of a solid) and of its realization for all practical purposes by the approximation process. Then, for theoretical completeness, rigorous proofs of these theorems are given in Appendix III, where the theory of limits is presented in far simpler terminology than is found in current text books and in such a way as to leave nothing to be unlearned or compromised in later mathematical work."

Plane Trigonometry for Secondary Schools. By C. DAVISON. Cambridge: at the University Press, 1919. 12mo. 4 + 334 pp. Price 6 shillings and 6 pence.

Contents—I: Trigonometrical ratios of an acute angle, 1–30; II: Circular measure, 31–40; III: Circular functions of an angle of any magnitude, 41–56; IV: Graphs of the circular functions, 57–65; V: Circular functions of compound angles, 66–84; VI: Circular functions of multiple angles, 85–98; VII: Transformation of trigonometrical expressions, 99–111; VIII: Solution of trigonometrical equations, 112–141; IX: Inverse functions, 142–147; X: Circular functions of sub-multiple angles, 148–158; XI: The geometry of the triangle, 159–174; XII: The solution of triangles, 175–187; XIII: Practical applications, 188–208; XIV: The principal circles associated with a triangle, 209–223; XV: The geometry of the quadrilateral, 224–232; XVI: Areas of regular polygons and circles, 233–238; XVII: Inequalities, 239–247; XVIII: Approximations and errors, 248–256; XIX: DeMoivre's theorem, 257–274; XX: Series, 275–287; Problem papers, 288–308; Answers, 309–334.

Elementary Applied Mathematics. A practical course for general students. By W. P. WEBBER. New York, Wiley, 1920. 12mo. 10 + 115 pp. Price $1.25.

Preface: "This course is a response to a demand in this university [of Pittsburg]. It is an effort to provide a course that is complete in itself and sufficiently general and practical to meet the needs of a large class of students who are not to specialize in mathematics but who do want some elementary mathematical training that they can use in everyday affairs.

"While the course has been developed simultaneously with Webber and Plant's *Introductory Mathematical Analysis* and there is some material common to the two courses, yet they are addressed to distinctly different groups of students.

"A knowledge of elementary algebra and geometry is presupposed. Students with little or no knowledge of formal geometry have succeeded with the course.

"The course has been given by lecture or in mimeograph form to classes during the past several years. . . ."

Contents—I: Review of elementary algebra, 1–9; II: Geometric theorems, 10–13; III: Methods of calculation, 14–27; IV: Graphic representation, 28–41; V: Ratio, proportion and variation, 42–47; VI: Geometric problems, 48–54; VII: Rectangular coördinates, graphs of equations, empirical formulas, 55–71; VIII: Applications of percentages, 76–79; IX: Analysis of food and receipts, 80–85; X: Individual and family accounts, 86–96; Tables 97–115.

ARTICLES IN CURRENT PERIODICALS.

AMERICAN MACHINIST, New York, volume 52, March 25, 1920: "War on the decimal system" by F. Franz, 682–684; "Octaval notation and the measurement of binary inch fractions" by A. Watkins, 685–688.

ANNALS OF MATHEMATICS, second series, volume 21, no. 3, March, 1920: "A Green's theorem in terms of Lebesgue integrals" by H. E. Bray, 141–156; "Bilinear operations generating all operations rational in a domain Ω" by N. Wiener, 157–165; "On the enumeration of proper and improper representations in homogeneous forms" by E. T. Bell, 166–179; "A proof of Jordan's theorem about a simple closed curve" by J. W. Alexander, 180–184; "Linear order in three dimensional Euclidean and double elliptic spaces" by G. H. Hallett, Jr., 185–202; "Further properties of the general integral" by P. J. Daniell, 203–220; "Summability of double series" by L. L. Smail, 221–223; "The fundamental theorem of celestial mechanics" by J. L. Coolidge, 224.

BULLETIN OF THE AMERICAN MATHEMATICAL SOCIETY, volume 26, no. 7, April, 1920: "Parametric equations of the path of a projectile when the air resistance varies as the nth power of the velocity" by F. H. Safford, 289–293; "Infinite systems of functions" by W. E. Milne, 294–300; "On certain related functional equations" by W. H. Wilson, 300–312; "The equation $ds^2 = dx^2 + dy^2 + dz^2$" by E. T. Bell, 312–318; "A property of permutation groups analogous to multiple transitivity" by W. B. Carver and Mrs. Estella F. King, 319–322; "College algebras" by Elizabeth B. Cowley, 323–329 [review of E. B. Skinner's *College Algebra* (New York, Macmillan, 1918), of W. C. Brenke's *Advanced Algebra* (New York, Century, 1917) and of Helen A. Merrill and Clara E. Smith's *A First Course in Higher Algebra* (New York, Macmillan, 1917)]; "Notes," 329–333; "New publications," 334–336.

CANADIAN CHARTERED ACCOUNTANT, Toronto, Ontario, volume 9, no. 4, April, 1920: "Bond schedules for the amortization of a premium or accumulation of a discount" by S. D. Killam, 231–236.

EDUCATIONAL REVIEW, volume 59, no. 4, April, 1920: "Junior high school mathematics" by T. Lindquist, 296–303. [Quotation: "Students who have completed a satisfactory junior high school course in mathematics should be able during their senior high school to complete plane and solid geometry in one year, physics in one year, and algebra III together with trigonometry or college algebra the final year."]

ENGINEERING AND CONTRACTING, Chicago, volume 53, February 4, 1920: "Instruction and tables for reducing labor in curve computation" by J. H. Lilly, 137–138.

ENGINEERING NEWS-RECORD, New York, volume 84, February 19, 1920: "Solution of compound curve problems" by L. R. Brown, 378–379 [Reprinted from *Electric Railway Journal,* Jan. 17, 1920]—March 4: Table for converting from scale 1 in. = 100 ft. in plotting curves," 486.

INDUSTRIAL MANAGEMENT, volume 59, no. 4, April, 1920: "The mathematics of labor turnover" by C. G. Barth, 315–318.

INTERNATIONAL MARINE ENGINEERING, New York, volume 25, March, 1920: "Pointing off when using the slide rule" by B. W. Manier, 228–229.

JOURNAL OF EDUCATIONAL RESEARCH, University of Illinois, volume 1, no. 3, March, 1920: "A shorter method for computing the coefficient of correlation" by L. P. Ayres, 216–221; "A bibliography of standard tests for the high school" by W. S. Monroe, 240–242 [VIII. Mathematics].